REMARKS / ARGUMENTS

The present application includes pending claims 1-42, all of which have been rejected. The Applicant respectfully submits that the claims define patentable subject matter.

Claims 1-40 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,521,910, issued to Matthews (hereinafter, Matthews), in view of U.S. Patent Application Publication No. 2002/0131363, issued to Beshai, et al. (hereinafter, Beshai). Claims 41-42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 7,085,306, issued to Voldman, et al. (hereinafter, Voldman), in view of Beshai. The Applicant respectfully traverses these rejections at least for the reasons previously set forth during prosecution and at least based on the following remarks.

I.   **Examiner's Response to Arguments in the Non-Final Office Action (mailed 11/15/2007) and in the Final Office Action**

A.   **The 11/15/2007 Non-Final Office Action**

The Examiner states the following in the Non-Final Office Action:

Matthews discloses aggregating (accumulates, col. 19, line 18-19) messages (values, col. 19, line 18) from a physical layer (611-Fig. 22. Note that Fig. 22 is an illustration of a port object for the switch of FIG. 21, and FIG. 21 is an illustration of the software embodiment of the invention) of each communication band (col. 1,

line 15. Note that col. 1 is the field of the invention. It describes that the invention is directed to allocating bandwidth by multiple level of arbitration that means multi-band) and each communication channel (all nodes, col. 19, line 19) associated with each of a plurality of protocols (col. 1, lines 13-14. Note that col. 1 is the field of the invention. It describes that the invention is protocol independent that means multi-protocol) in a single multiprotocol layer of the multi-band, multi-protocol network (Figs. 11A-C, and col. 6, lines 56-57).

See the Non-Final Office Action at page 8. It seems that the Examiner has performed individual word searches throughout the specification without showing any support for the specific claim limitations recited by the Applicant. For example, the Examiner equates "aggregating" with "accumulating" and is citing to col. 19, lines 18-19 of Matthews. At col. 19, lines 18-19, Matthews discloses a best path determination method for the SCS switch agent 78 using accumulation of path values a, ..., n. In fact, path values are also equated to value vectors that are used for finding an optimal path in a mesh of network nodes. The Applicant points out that the relevant claim limitation is "aggregating **messages from a physical layer." Therefore, even if we assume that the accumulation of Matthews is the same as aggregation, the Examiner's argument is still deficient since the path values a, ..., n are obviously not physical layer (PHY) messages**.

With regard to Examiner's statement that "the invention is directed to allocating bandwidth by multiple level of arbitration that means multi-band," the

Applicant points out that Matthews uses multiple levels of arbitration only to allocate **the** bandwidth, i.e., **the available bandwidth** disclosed by Matthews. There is no disclosure that, in fact, Matthews utilizes a multi-band network. On the contrary, Matthews discloses the use of bandwidth-limited shared resources. *See* Matthews, col. 1, lines 15-20.

With regard to "multi-protocol", the Applicant points out that Matthews, at col. 1, lines 13-14, states "establishing **temporary connections which are protocol-independent** and transparent." In other words, the temporary connections are protocol-independent, i.e., they can function under different protocols. This, however, does not mean that the network of Matthews is a multi-protocol network. Therefore, the Applicant maintains the arguments stated in the September 25, 2007 response.

The Examiner states the following in the Non-Final Office Action:

> Applicant argues that Voldman et al. do not teach the limitation of "a multiprotocol layer above, and interfacing with said MAC layer" as recited by the applicant in claim 41. In response, the Examiner respectfully disagrees. In col. 9, lines 8-11, Voldman et al. state that "The MAC layer 44 may use a protocol described in IEEE 802. However, other MAC layer protocols could also be used, such MCNS MAC layer protocol, for instance". It is clear that Voldman et al. teach a multi-protocol layer.

See the Office Action at page 8. The Applicant points out that col. 9, lines 8-11 of Voldman relate to the MAC layer. However, the relevant claim limitation is

"multiprotocol layer **above** ... **said MAC layer**." Voldman clearly does not satisfy this limitation. Therefore, the Applicant maintains the arguments stated in the September 25, 2007 response.

B.   The Final Office Action

The Examiner states the following in the Final Office Action:

> Applicant argues that the "path values a, ... , n" in the reference (col. 19, lines 18-19) of Matthews, is not physical layer message. In another paragraph in the same endeavor, Matthews teaches aggregating messages (combination of source port, source MAC, ... , refer to col. 17, lines 37-39) from a physical layer.

See the Final Office Action at page 7. The Applicant has already explained why the path values a, ..., n are not a physical layer message (e.g., see section A above). In the above Final Office Action citation, the Examiner does not address Applicant's arguments from the February 15, 2008 response. Instead, the Examiner seems to rely for support on a new citation (col. 17, lines 37-39) of Matthews. The Applicant points out that col. 17, lines 37-39 of Matthews simply provide a definition of the term "connection", as used for purposes of programming switches by the SCS 78. In this regard, col. 17, lines 37-39 of Matthews does not disclose any aggregation of physical layer messages. In fact, the term "connection" is defined in terms of MAC layer characteristics, and PHY layer messages are not used.

The Examiner further states the following in the Final Office Action:

> In col. 9, lines 8-11, Voldman et al. state that "The MAC layer 44 may use a protocol described in IEEE 802. However, other MAC layer protocols could also be used, such MCNS MAC layer protocol, for instance. Above the MAC layer 44 may be a link security protocol stack. Note that the security protocol stack is above MAC layer". It is clear that Voldman et al. teach a multi-protocol layer.

See the Final Office Action at page 8. The Examiner continues to rely on FIG. 2 of Voldman, which discloses the conventional protocol stack for a data-over-cable system. This time, however, the Examiner is relying on the link security stack 46, instead of the PPP stack 50. Voldman discloses that the link security stack 46 simply prevents unauthorized users from making a data connection from cable network 14. There is no disclosure in Voldman that the link security stack 46 is a multiprotocol layer above the MAC layer. In fact, the link security stack 46 is in the same layer (data link layer) as the MAC 44. The Examiner has also attempted to introduce limitations from dependent claim 4 into claim 41. The Applicant respectfully disagrees and points out that claim 4 is dependent on claim 1, and since claim 41 is independent, no limitations from other dependent claims may be brought into the analysis of claim 41.

Therefore, the Applicant maintains the arguments stated in the September 25, 2007 response, which are summarized below for convenience.

REJECTION UNDER 35 U.S.C. § 103

In order for a *prima facie* case of obviousness to be established, the Manual

of Patent Examining Procedure, Rev. 6, Sep. 2007 ("MPEP") states the following:

> The key to supporting any rejection under 35 U.S.C. 103 is the clear
> articulation of the reason(s) why the claimed invention would have
> been obvious. The Supreme Court in KSR International Co. v.
> Teleflex Inc., 82 USPQ2d 1385, 1396 (2007) noted that the analysis
> supporting a rejection under 35 U.S.C. 103 should be made explicit.
> The Federal Circuit has stated that "rejections on obviousness
> cannot be sustained with mere conclusory statements; instead, there
> must be some articulated reasoning with some rational underpinning
> to support the legal conclusion of obviousness."

See the MPEP at § 2142, citing *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329,

1336 (Fed. Cir. 2006), and *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d at

1396 (quoting Federal Circuit statement with approval). Further, MPEP § 2143.01

states that "the mere fact that references can be combined or modified does not

render the resultant combination obvious unless the results would have been

predictable to one of ordinary skill in the art" (citing *KSR International Co. v.

Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007)). Additionally, if a *prima facie* case of

obviousness is not established, the Applicant is under no obligation to submit

evidence of nonobviousness:

> The examiner bears the initial burden of factually supporting any
> *prima facie* conclusion of obviousness. If the examiner does not
> produce a *prima facie* case, the applicant is under no obligation to
> submit evidence of nonobviousness.

See MPEP at § 2142.

II.   The Proposed Combination of Matthews and Beshai Does Not Render Claims 1-40 Unpatentable

The Applicant first turns to the rejection of claims 1-40 as being unpatentable over Matthews in view of Beshai.

A.   Independent Claim 1

With regard to the rejection of independent claim 1 under 103(a), the Applicant submits that the combination of Matthews and Beshai does not disclose or suggest at least the limitation of "aggregating messages from a physical layer of each communication band and each communication channel associated with each of a plurality of protocols in a single multi-protocol layer of the multi-band, multi-protocol network," as recited by the Applicant in independent claim 1.

The Office Action states the following:

For claim 1, Matthews substantially teaches a method (Title) for providing enhanced connectivity (best path, Title) in a multi-band, multi-protocol (col. 16, lines 28-29) network, the method comprising:

aggregating (accumulates, col. 19, line 18-19) *messages* (values, col. 19, line 18) *from a physical layer* (611-Fig. 22. Note that Fig. 22 is an illustration of a port object for the switch of Fig. 21, and Fig. 21 is an illustration of the software 'embodiment-of the invention) *of each communication band* (col. 5, lines 59-61) *and each communication channel* (all nodes, col. 19, line 19) *associated with each of a plurality of protocols* (col. 16, lines 28-29) *in a single multi-protocol layer of the multi-band, multi-protocol network* (Figs. 11A-C, and col. 6, lines 56-57);

See the Office Action at page 2. The Examiner equates "aggregating" with "accumulating" and is citing to col. 19, lines 18-19 of Matthews. At col. 19, lines 18-19, Matthews discloses a best path determination method for the SCS switch agent 78 using accumulation of path values a, ..., n. In fact, path values are also equated to value vectors that are used for finding an optimal path in a mesh of network nodes. **The Applicant points out that the relevant claim limitation is "aggregating messages from a physical layer." Therefore, even if we assume that the accumulation of Matthews is the same as aggregation, the Examiner's argument is still deficient since the path values a, ..., n are obviously not physical layer (PHY) messages**.

With regard to "multi-protocol", the Applicant points out that Matthews, at col. 1, lines 13-14, states "establishing temporary connections which are protocol-independent and transparent." In other words, **the temporary connections are protocol-independent, i.e., they can function under different protocols. This, however, does not mean that the network of Matthews is a multi-protocol network.** The Applicant is also confused as to why the Examiner is referring for support to FIGS. 11A-C, since these figures illustrate best path determination and they do not illustrate a multi-protocol and multi-band network, or aggregating messages into a single multi-protocol layer, as recited in Applicant's claim 1.

Beshai does not overcome the deficiencies of Matthews. Therefore, the Applicant maintains that the combination of Matthews and Beshai does not

disclose or suggest at least the limitation of "aggregating messages from a physical layer of each communication band and each communication channel associated with each of a plurality of protocols in a single multi-protocol layer of the multi-band, multi-protocol network," as recited by the Applicant in independent claim 1.

Accordingly, the proposed combination of Matthews and Beshai does not render independent claim 1 unpatentable, and a *prima facie* case of obviousness has not been established. The Applicant submits that claim 1 is allowable. Independent claims 11, 21, and 31 are similar in many respects to the method disclosed in independent claim 1. Therefore, the Applicant submits that independent claims 11, 21, and 31 are also allowable over the references cited in the Office Action at least for the reasons stated above with regard to claim 1.

B.   Rejection of Dependent Claims 2-10, 12-20, 22-30, and 32-40

Based on at least the foregoing, the Applicant believes the rejection of independent claims 1, 11, 21, and 31 under 35 U.S.C. § 103(a) as being unpatentable over Matthews in view of Beshai has been overcome and requests that the rejection be withdrawn. Additionally, claims 2-10, 12-20, 22-30, and 32-40 depend from independent claims 1, 11, 21, and 31, respectively, and are, consequently, also respectfully submitted to be allowable.

The Applicant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 2-10, 12-20, 22-30, and 32-40.

III. The Proposed Combination of Voldman and Beshai Does Not Render Claims 41-42 Unpatentable

The Applicant now turns to the rejection of claims 41-42 as being unpatentable over Voldman in view of Beshai.

A. Independent Claim 41

With regard to the rejection of independent claim 41 under 103(a), the Applicant submits that the combination of Voldman and Beshai does not disclose or suggest at least the limitation of "a multi-protocol layer above, and interfacing with, said MAC layer," as recited by the Applicant in independent claim 41.

The Office Action states the following:

For claim 41, Voldman et al. substantially teach a system for providing enhanced connectivity in a multi-band, multi-protocol network, the system comprising:

a physical layer (38-Fig. 2);

a MAC layer above (44-Fig. 2) and interfacing with said physical layer (Fig. 2); and

multi-protocol layer above (security 46, and PPP 50 -Fig. 2) and interfacing with said MAC layer (Fig. 2, and col. 9, lines 8-16).

However, Voldman et al. fail to specifically teach a multi-band network for this application.

Beshai et al. teach a multi-band network (0051], lines 9-12).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine Voldman et al. with Beshai et al. to obtain the invention as specified, for more flexible network applications.

See the Office Action at page 6. The Applicant respectfully disagrees with the above argument. Initially, the Applicant points out that neither Voldman nor Beshai are related, or disclose or suggest, a multi-protocol network.

The Examiner further relies on Figure 2 of Voldman. Figure 2 of Voldman discloses a conventional protocol stack for a data-over-cable system. The Examiner has equated the Applicant's "multi-protocol layer" limitation with the PPP layer 50 of Voldman. The Applicant respectfully disagrees. **The PPP layer 50 is in fact a point-to-point ("PPP") layer 50, and it is not a multi-protocol layer. Furthermore, the PPP layer 50 is above the telephone interface 48 (as clearly disclosed in col. 9, line 15 and Figure 2 of Voldman), and it is not above the MAC layer, as erroneously stated by the Examiner. In fact, as seen from Figure 2 of Voldman, <u>the PPP layer 50 and the MAC layer 44 are within the same data link layer 42</u>.** Beshai does not overcome the above deficiencies of Voldman.

Therefore, the Applicant maintains that the combination of Voldman and Beshai does not disclose or suggest at least the limitation of "a multi-protocol layer

above, and interfacing with, said MAC layer," as recited by the Applicant in independent claim 41.

Accordingly, the proposed combination of Voldman and Beshai does not render independent claim 41 unpatentable, and a *prima facie* case of obviousness has not been established. The Applicant submits that claim 41 is allowable.

B.   Rejection of Dependent Claim 42

Based on at least the foregoing, the Applicant believes the rejection of independent claim 41 under 35 U.S.C. § 103(a) as being unpatentable over Voldman in view of Beshai has been overcome and requests that the rejection be withdrawn. Additionally, claim 42 depends from independent claim 41, and is, consequently, also respectfully submitted to be allowable.

The Applicant also reserves the right to argue additional reasons beyond those set forth above to support the allowability of claim 42.

CONCLUSION

Based on at least the foregoing, the Applicant believes that all claims 1-42 are in condition for allowance. If the Examiner disagrees, the Applicant respectfully requests a telephone interview, and requests that the Examiner telephone the undersigned Attorney at (312) 775-8176.

The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to the deposit account of McAndrews, Held & Malloy, Ltd., Account No. 13-0017.

A Notice of Allowability is courteously solicited.

Respectfully submitted,

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